

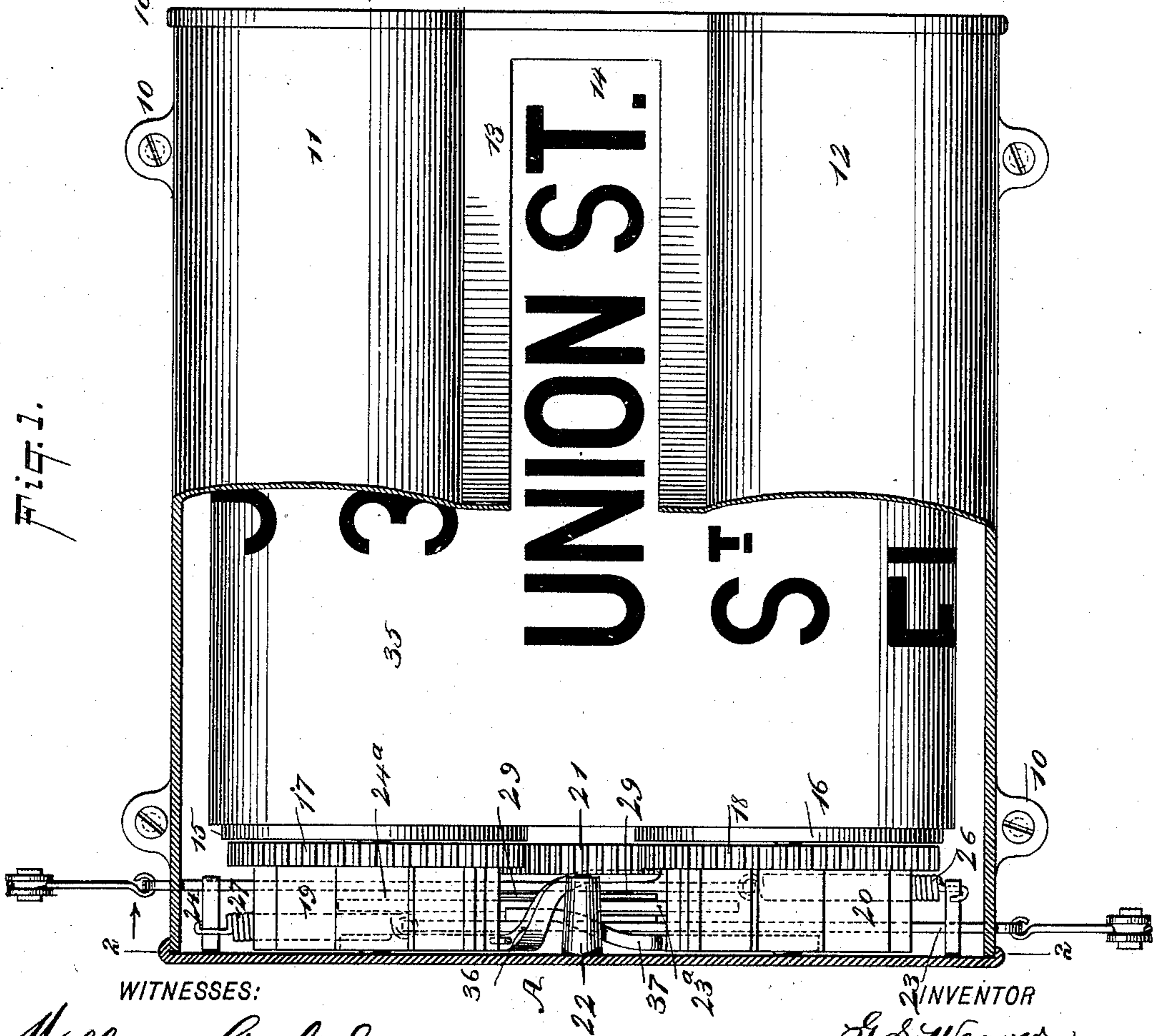
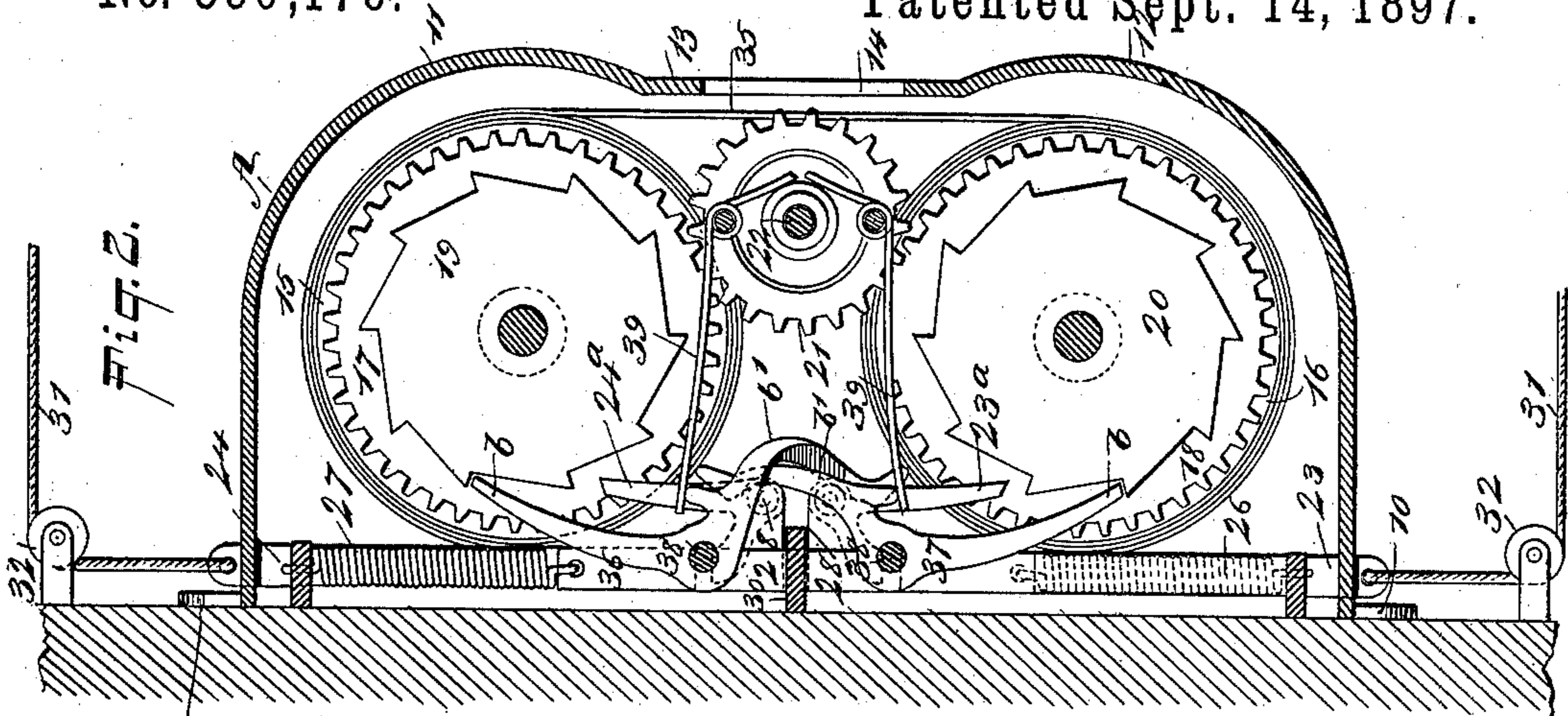
(No Model.)

2 Sheets—Sheet 1.

G. S. WEAVER.  
STATION INDICATOR.

No. 590,176.

Patented Sept. 14, 1897.



WITNESSES:

William Goebel  
C. Sedgwick

INVENTOR

G. S. Weaver  
BY Kunn & Co

ATTORNEYS.

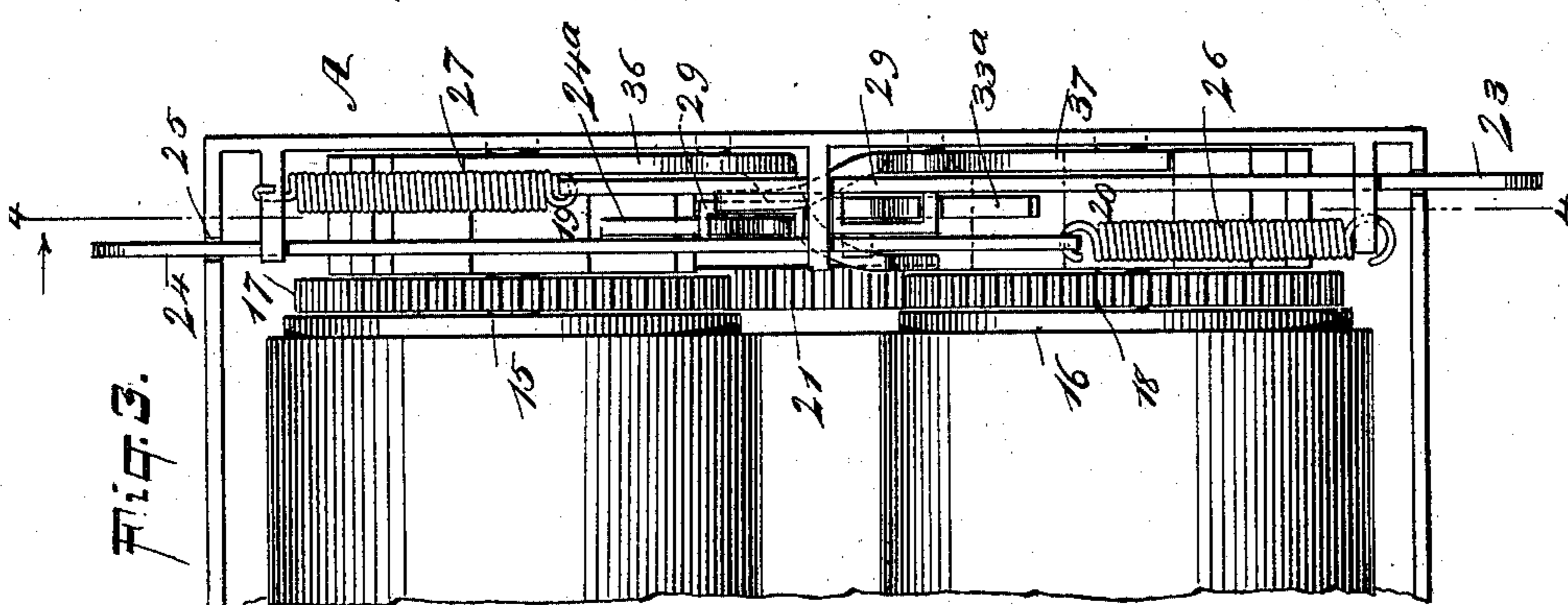
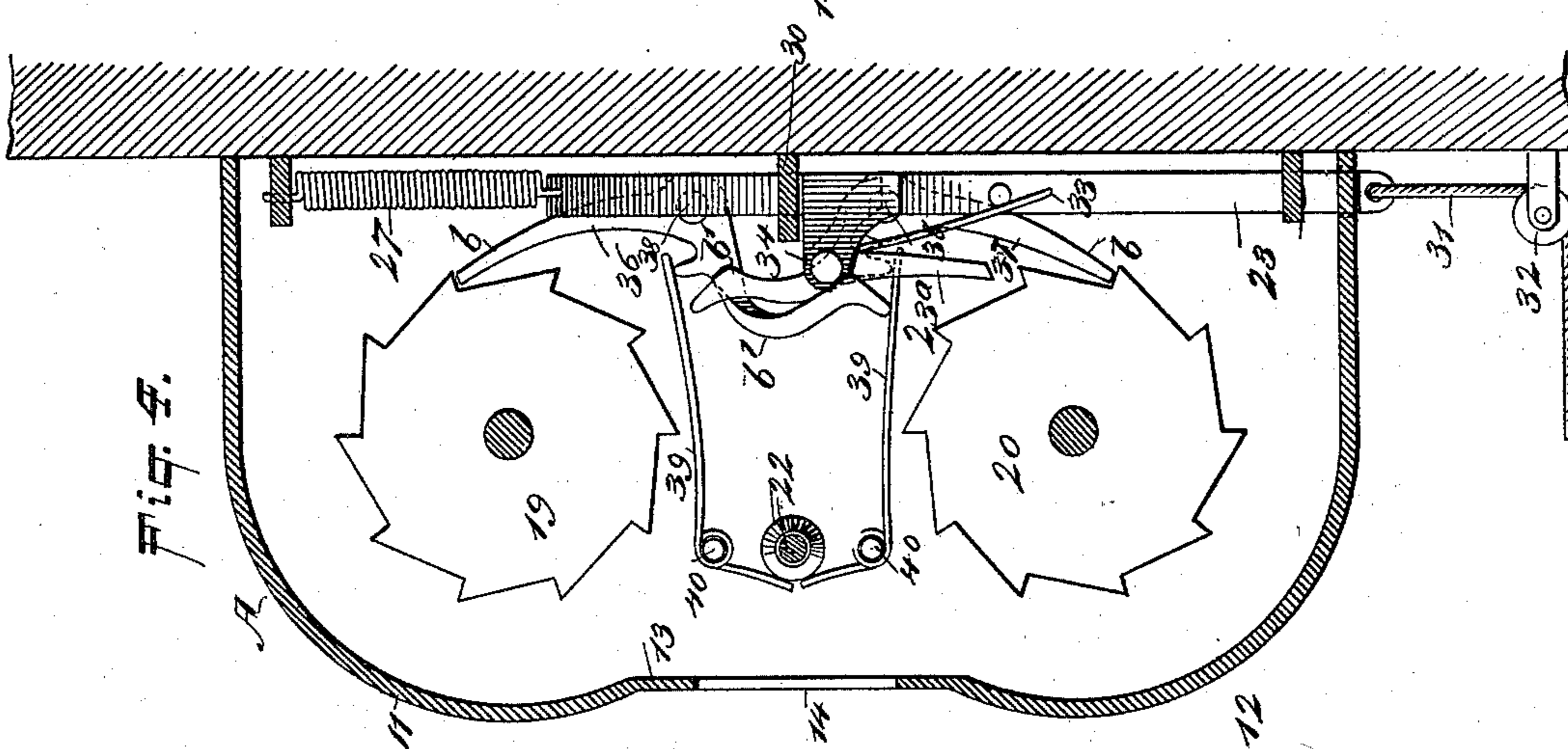
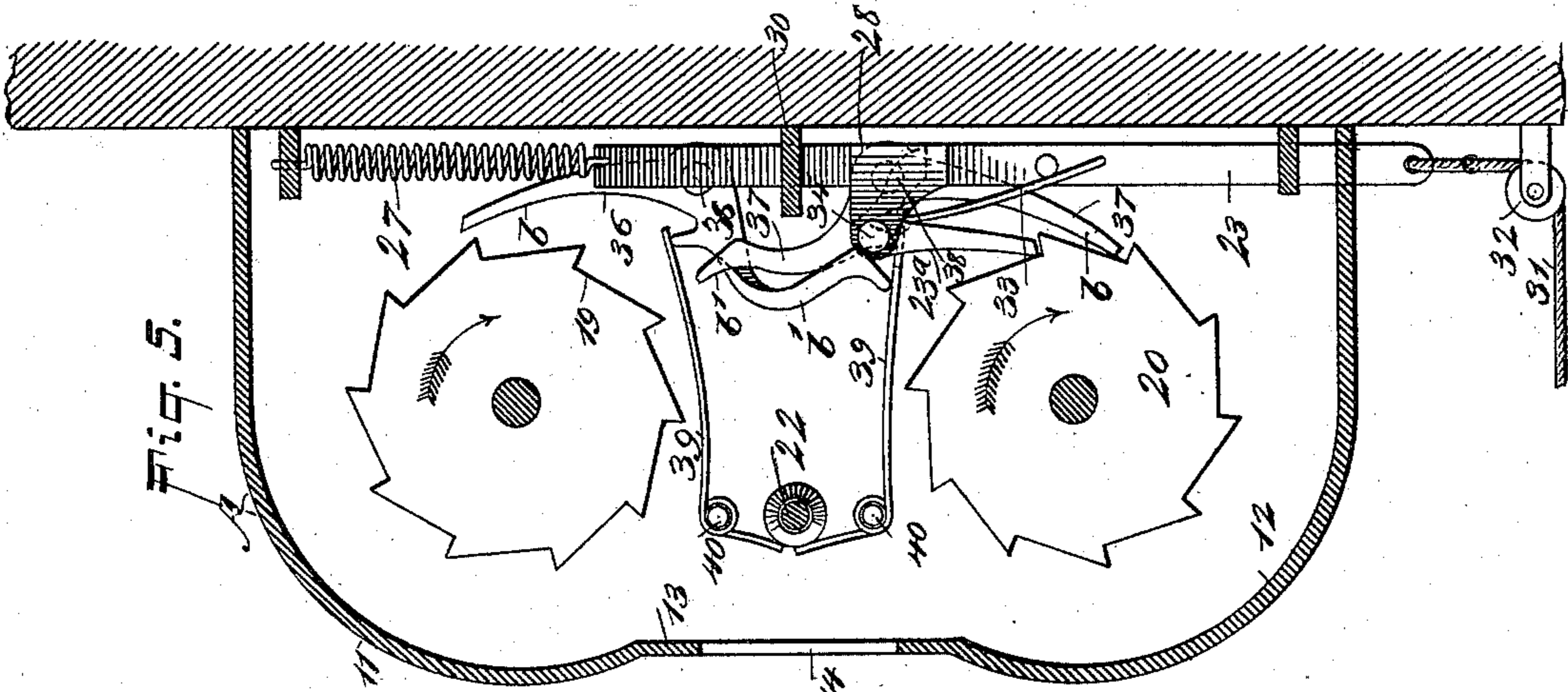
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G. S. WEAVER.  
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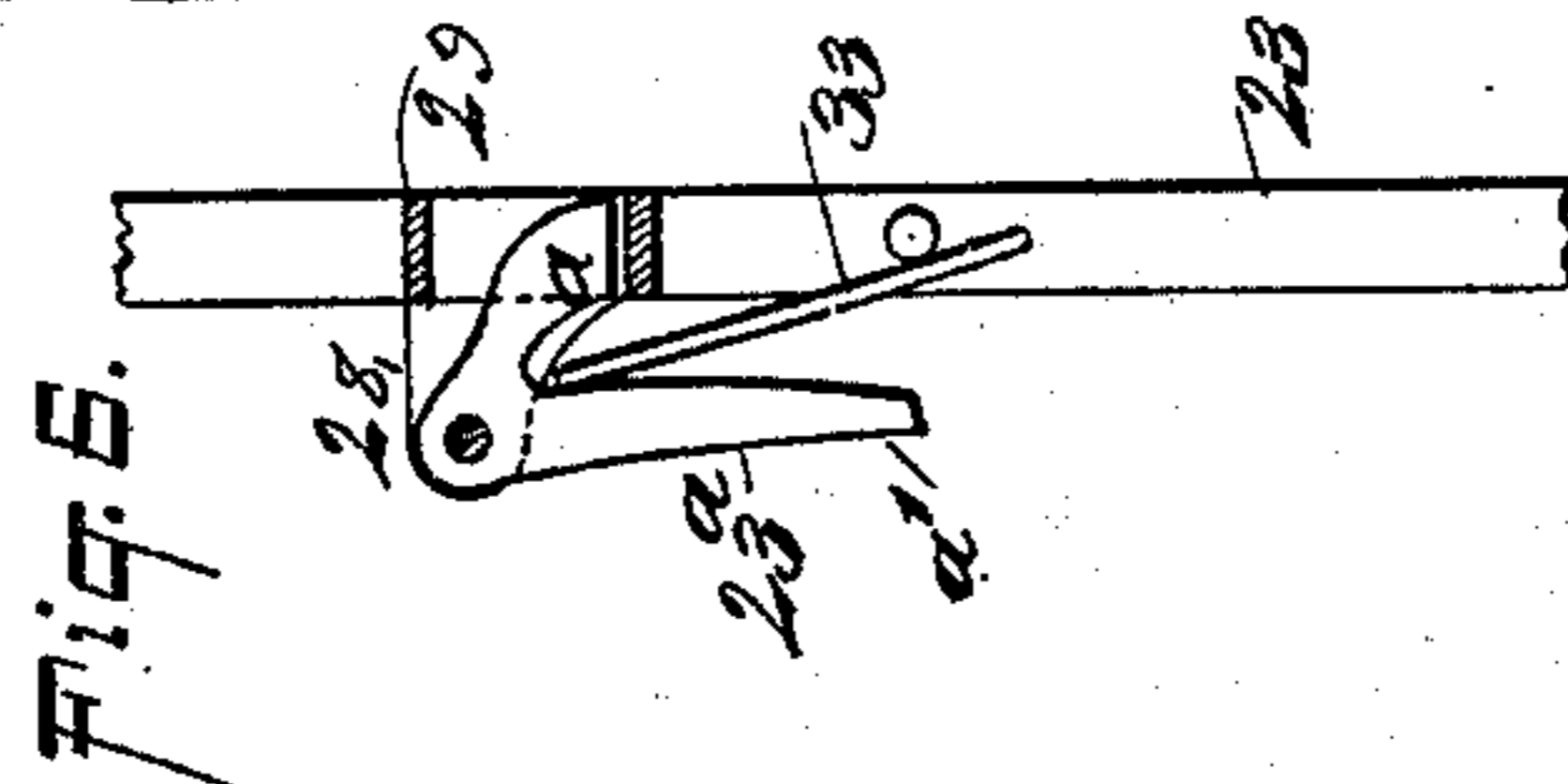
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WITNESSES:

William Gaebel.  
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INVENTOR

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# UNITED STATES PATENT OFFICE.

GEORGE S. WEAVER, OF ALBANY, NEW YORK.

## STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 590,176, dated September 14, 1897.

Application filed December 28, 1893. Renewed October 15, 1895. Serial No. 565,809. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE S. WEAVER, of Albany, in the county of Albany and State of New York, have invented a new and Improved Station-Indicator, of which the following is a full, clear, and exact description.

My invention relates to an improvement in station-indicators; and it has for its object to provide an indicator which will be exceedingly simple in its construction and by means of which the stations along the line of a given road may be indicated as they are approached or at any desired time before they are approached and whereby also when used in connection with a street-car the names of the various streets may be indicated just prior to the arrival of the car at the said streets or when a street is reached.

A further object of the invention is to provide a station-indicator which will be under the complete control of the conductor, brakeman, or driver of the car and which when operated to move the belt containing the names of the stations will automatically act to prevent the belt from moving back in the direction of the support from which it was drawn.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the improved station-indicator, a portion of the casing being broken away. Fig. 2 is a vertical section through the casing, taken practically on the line 2 2 of Fig. 1. Fig. 3 is a partial rear elevation of the indicator. Fig. 4 is a section taken practically on the line 4 4 of Fig. 3, illustrating the parts at rest or in their normal position. Fig. 5 is a section similar to Fig. 4, in which the parts are shown in the position they occupy when about to operate to move the station belt or apron; and Fig. 6 is a detail view of one of the draw-bars, illustrating the manner in which the dog it carries is connected therewith.

The form of indicator illustrated is adapted

to be secured in an upright position at, for example, the ends of a car or like vehicle. The back of the casing is ordinarily open, but may be closed, if desired, and the said casing is provided at top and bottom of its rear portion with lugs 10, whereby it may be secured to a support. The ends of the casing are ordinarily made straight and the entire casing is made square, but the front is made more or less cylindrical. Preferably, as shown in the drawings, the front of the casing is provided with two surfaces 11 and 12, located one at the bottom and the other at the top, the said surfaces extending from end to end of the casing, while between the cylindrical surfaces a flat surface 13 is produced, in which an opening 14 is made, said opening being normally of a length corresponding to the length of the casing.

Within the casing beneath each of its cylindrical surfaces a roller is journaled in the ends of the casing, the upper roller being designated as 15 and the lower one as 16. Each roller at one of its ends is provided with a gear securely fastened to it, the gear of the upper roller being designated as 17, while that of the lower roller is designated as 18, and the upper gear 17 has attached to its outer face a ratchet-wheel 19, while the lower gear is provided with a like ratchet-wheel 20, the teeth of the two ratchet-wheels facing in opposite directions. The gears of the two rollers are connected through the medium of a pinion 21, and the said pinion may be and preferably is located upon a stud 22, attached to one end of the casing, as illustrated in Fig. 1.

At the end of the casing near which the geared ends of the rollers are located sliding or draw bars 23 and 24 are located. The draw-bars are independent one of the other and one of them extends upward through an opening 25 in the top of the casing, its lower end being attached to a spring 26, which is firmly attached to the bottom portion of the casing, while the other draw-bar extends outward through an opening in the bottom portion in the casing and its upper end is secured to the spring 27, secured to the casing itself at the top or to any convenient support. The draw-bar 23 carries a spring-pressed dog 23<sup>a</sup> and the draw-bar 24 is provided with a

like dog 24<sup>a</sup>, the dog 23<sup>a</sup> being adapted for engagement with the ratchet-wheel 20 of the lower roller, while the dog 24<sup>a</sup> is adapted for engagement with the ratchet-wheel 19 of the upper roller.

Each draw-bar 23 and 24 is provided at or near its center with a stud 28, projecting forwardly from it, and a boxing 29, located upon one side, as shown in detail in Fig. 6. The studs 28 of the draw-bars are adapted to have limited movement in one direction by being brought in contact with a guide 30, located about centrally between the top and bottom of the casing and through which the draw-bars have movement, like guides being provided for the draw-bars near the top and bottom portions of the casing, as shown best in Fig. 2. Thus when what may be termed the "lower" draw-bar 23 is drawn downward and is released its upward movement will be limited by its stud 28 engaging with the guide 30 and when the upper draw-bar 24 is drawn upward and released its stud 28 will limit the downward movement of said bar. Each draw-bar has attached at its outer end a cord 31, or the equivalent thereof, passed over one or more friction-rollers 32 to a point within convenient reach of the driver, conductor, brakeman, or whoever has charge of the machine.

The dogs 23<sup>a</sup> and 24<sup>a</sup> are of like construction, but face in opposite directions. Each dog is more or less angular in its formation, comprising a foot *a*, having movement in the box 29 of the draw-bar with which it is connected, and an actuating arm or body portion *a'*, adapted for engagement with the ratchet-wheel to be operated, and the arm or body *a'* is held in operative position by means of a spring 33, as shown in Fig. 6, which spring normally holds the foot-section *a* of the dog against the wall of the box facing in the direction in which the draw-bar is to be moved. The dogs are pivoted upon the studs 28 and their pivot-pins are projected outward to form horizontal studs 34.

When, for example, the draw-bar 23 is drawn downward, the dog 23<sup>a</sup> will engage with the lower ratchet-wheel 20 and turn that wheel, for example, the distance of one tooth, and when the said draw-bar 23 is released it will be returned by its spring 27, the dog slipping over the teeth of the ratchet-wheel, and when the draw-bar assumes its normal position, which is shown in Fig. 4, the dog will be removed entirely out of engagement with the teeth of the ratchet-wheel.

A belt or apron 35 is wound upon one roller and is adapted to be unwound therefrom upon the other roller, and according to the direction in which the belt is to be moved one or the other of the draw-bars is manipulated. By using two draw-bars the necessity of winding the belt or apron entirely from one roller to the other is avoided, since the belt or apron may be moved upon the return trip in a direction the reverse of its movement upon the

initial trip; but it will be understood that if in practice it is found desirable a single draw-bar only need be employed.

When the two draw-bars are employed, it oftentimes happens when the rollers have been manipulated to remove the name of one station from the opening 14 and present at the said opening the name of the next station that after the movement has been accomplished the belt or apron carrying the names of the stations will sag more or less or move in the direction from which the apron was drawn. To avoid such slipping of the apron, two pawls 36 and 37 are employed. These pawls are fulcrumed upon suitable pins or studs 38, attached to one side of the casing, and each pawl consists of a locking member *b* and a releasing member *b'*, as is best shown in Figs. 2, 4, and 5. These members are located one at each side of the pivot-point, the locking member of the pawl 36 being adapted for engagement with the ratchet-wheel 19 of the upper roller and the corresponding member of the pawl 37 engages with the ratchet-wheel 20 of the lower roller, while the releasing members of these pawls are carried in reverse directions between the two rollers, and in order that the releasing member of one pawl shall not interfere with the corresponding member of the other pawl the releasing member of the pawl 36, for example, is so curved as to extend over and entirely out of the way of the corresponding member of the pawl 37. The extremity of the releasing member of the pawl 36, which engages with the ratchet-wheel of the upper roller, is adapted to be tripped by the stud 34, carried by the lower draw-bar, while the stud on the upper draw-bar will operate upon the releasing member of the pawl acting in connection with the lower roller.

The locking members *b* of both of the pawls are held in engagement with their respective ratchet-wheels through the medium of springs 39, which, as shown in Figs. 4 and 5, may be attached to studs 40, projected from one side of the casing, the longer ends of the springs having bearing upon projections formed upon the releasing members of the pawls near the pivot-points thereof, while the opposite ends of the springs may have bearing upon the hub of the pinion 21 or a sleeve located on the shaft or pintle of that pinion.

The operation of the device will be best understood when the action of one draw-bar is explained—the lower one, for example—and therefore such movement has been illustrated in Figs. 4 and 5. In Fig. 4 the parts are shown in their normal position. Both pawls are in engagement with their ratchet-wheels and the dogs are out of engagement with said wheels. It being desired to change the name of the station at the casing-opening 14 by drawing the station belt or apron from the upper roller upon the lower one, on drawing downward upon the draw-bar 23 the dog 23<sup>a</sup> of that draw-bar will be carried to an engage-

ment with the teeth of the lower ratchet-wheel and at the time that the ratchet-wheel 20 is moved by the dog 23<sup>a</sup> the stud 34 upon the draw-bar 23 will have raised the releasing member *b'* of the upper pawl 36 sufficiently to carry its locking member *b* out of engagement with the upper ratchet-wheel, thus permitting that ratchet-wheel to turn and likewise permitting the upper roller to revolve and the apron or belt to be wound around the lower roller. When the stud 34 releases the pawl 36 in its further action upon the lower ratchet-wheel, the pawl in engaging with the upper ratchet-wheel will strike it between two of its teeth. Therefore the upper roller will be free to turn a distance corresponding to the distance between two teeth of the upper ratchet-wheel, which will be the extent of the movement of the lower ratchet-wheel by the dog 23<sup>a</sup>. When the draw-bar 23 is released, it will again trip the upper dog 36, but the return of the bar will be so rapid, owing to the strength of the spring 27, that the movement of the pawl will be really instantaneous, and therefore will not affect the tension upon the station belt or apron.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a station-indicator, the combination, with rollers and a belt or apron connecting the rollers and adapted to have produced thereon the names of stations or streets, of gears secured to the rollers, a transmitting-gear connecting with the rollers, ratchet-wheels attached to the rollers, spring-controlled draw-bars having reverse movement, dogs carried by the draw-bars and adapted for engagement one with each ratchet-wheel, the teeth of the ratchet-wheels facing in opposite directions, detents normally held in engagement with each ratchet-wheel, said detents being provided with releasing-arms, and a trip connection, substantially as shown and described, between the dogs acting upon one ratchet-wheel and the detents operating upon an opposing ratchet-wheel, substantially as and for the purpose specified.

2. In a station-indicator, the combination, with rollers and a belt or apron connected with the rollers and adapted to have produced thereon the names of stations or streets, of gears secured to the rollers, a transmitting-gear connecting the roller-gears, ratchet-wheels secured upon the rollers, draw-bars located adjacent to the rollers, dogs carried by the bars and adapted for engagement with the ratchet-wheels of the rollers, pawls en-

gaging with the ratchet-wheels, and a trip connection, substantially as shown and described, between the dogs and the pawls, for disengaging the pawl from one ratchet-wheel when the dog operates upon the opposing ratchet-wheel, substantially as shown and described.

3. In a station-indicator, the combination, with rollers geared together and a belt or apron attached to both rollers and adapted to be rolled upon either, the said belt or apron having produced thereon information of a predetermined character, of a ratchet-wheel attached one to each roller, spring-controlled draw-bars located adjacent to the ratchet-wheels and adapted to have movement in opposite directions, a spring-controlled dog carried by each draw-bar, one dog being adapted for engagement with each of the ratchet-wheels, spring-controlled pawls normally in engagement one with each ratchet-wheel, and means for releasing the pawl from one ratchet-wheel when the opposite ratchet-wheel is operated upon by its dog, as and for the purpose set forth.

4. In a station-indicator, the combination with rollers geared together, and a display apron connected with the rollers, of a ratchet-wheel on the end of each roller, a spring-controlled draw-bar adjacent to the ratchet-wheels, a spring-pressed dog carried by the draw-bar and adapted to engage one of the ratchet-wheels, a spring-pressed detent normally held in engagement with the other ratchet-wheel, and means for disengaging the detent from its ratchet-wheel when the dog operates upon its ratchet-wheel, substantially as described.

5. In a station-indicator, the combination with two rollers geared together, and a display apron or belt connected with the rollers, of a ratchet-wheel on the end of each roller, a spring-controlled draw-bar adjacent the ratchet-wheels, a spring-pressed dog carried by the draw-bar and adapted to engage one of the ratchet-wheels, a spring-pressed detent normally held in engagement with the other ratchet-wheel, and provided with a releasing-arm, and a stud on the draw-bar for engaging the releasing-arm of the detent to disengage the said detent from its ratchet-wheel at the time the dog engages its ratchet-wheel, substantially as described.

GEORGE S. WEAVER.

Witnesses:

J. F. ACKER,  
C. SEDGWICK.